

REMARKS/ARGUMENTS

Claims 2-3, 5-10, and 18-23 are pending. Claims 1, 4, and 15-17 have been cancelled. Claims 11-14 have been withdrawn from consideration. Claims 18-23 have been added.

The Examiner rejected claims 2-8 under 35 U.S.C. 102(b) as being anticipated by Keller et al. (US 6,051,151), and claims 9-10 under 35 U.S.C. 103(a) as being unpatentable over Keller and further in view of Lenz (US 6,019,060).

Claim 2 has been amended to recite that magnetic field lines extend from the first magnetic element to the second magnetic element through the confinement rings. This is shown in FIG. 3 and described on page 6, lines 4-5, of the application. Keller does not teach or disclose magnetic elements where field lines extend from the first magnetic element to the second magnetic element through the confinement rings, as recited in claim 2, as amended. In reviewing Figures 1-6 of Keller, none of the figure show magnetic field lines going from a first magnetic element to a second magnetic element passing through a confinement ring, where the first magnetic element is closer to the substrate support than the confinement ring and the second magnetic element is further from the substrate support than the confinement ring. Figure 5 of Keller show magnetic field lines going between magnetic elements 30', 48, but such magnetic field do not pass through the region that the Examiner argued confinement rings would be. Instead, magnetic field lines from magnetic element 30' alone pass through such a region. This is because the polar axes of at least one of the magnets in Keller are parallel to the surface of the substrate whereas the polar axes in the invention are perpendicular to the substrate extending in the direction from the top to the bottom of the chamber.

The Examiner indicates that Figure 3 of Keller shows the magnetic fields passing through the confinement rings. Figure 3 shows magnetic field lines in a plane passing through the magnetic elements. The confinement ring is in a different plane than the magnetic elements. In addition, all of the magnetic elements 30 in Figure 3 of Keller are closer to the substrate support than the confinement ring. Figure 2 of Keller shows a side view of the device in Figure 3. In Figure 2, magnetic element 30 is closer to the substrate support, than the confinement ring, according to the Examiner's argument, although, in reality, no confinement ring is disclosed in Figure 2, and magnetic element 26 is further. If a confinement ring is disclosed or taught in Figure 2, it would be between elements 30 and 26. As shown, there is no magnetic field between

magnetic elements 26 and 30 that would pass through such a confinement ring. For at least these reasons, independent claim 2, as amended, is not anticipated by Keller.

Dependent claims 3, and 5-10 are also patentably distinct from the cited references for at least the same reasons as those recited above for independent claim 2, upon which they ultimately depend. These dependent claims recite additional limitations that further distinguish these dependent claims from the cited references.

For example, in the present application, claim 3 further recites that the magnetic field increases collisions of the charged particles with the confinement rings. When these charged particles pass through the magnetic field, their trajectories are bent, which in turn causes the particles to collide with the confinement rings. (Please see present application, Figure 3 and page 6, lines 1-24.) The Examiner failed to point out anything in Keller that teaches increasing collisions of particles with confinement rings. For at least these reasons, claims 3, and 5-10 are not anticipated or made obvious by the cited references.

Claims 18 and 21 have been added to recite that the first magnetic element has a pole from a north pole of the first magnetic element to a south pole of the first magnetic element, wherein the pole of the first magnetic element has a direction that extends between a chamber top to a chamber bottom and that the second magnetic element has a pole from a north pole of the second magnetic element to a south pole of the second magnetic element, wherein the pole of the second magnetic element has a direction that extends between the chamber top to the chamber bottom. The poles are discussed on page 14, lines 15-25 of the application and shown in FIG.'s 1, 3, 6, and 8 where the poles are shown to be vertical with respect to the chamber so that they extend vertically in the chamber in a direction between the top and bottom of the chamber. Keller does not provide an embodiment where both magnetic elements have poles that extend vertically. The bottom magnetic element in Keller is always shown with a pole that is horizontal. For at least these reasons, claim 18 is not disclosed or made obvious by the references.

Claims 19 and 22 have been added to further state that the magnetic fields of claim 18 and 21, respectively, make an angle of between being perpendicular and 45° with the largest surfaces of the confinement ring. Page 13, lines 6-10, of the application disclose a 45° angle, and FIG. 3 shows that the magnetic field lines being perpendicular.

Claim 20 has been added to further recite that the at least one confinement ring, comprises a first confinement ring and a second confinement ring spaced from the first confinement ring, wherein the first magnetic element is placed on a first side of the first confinement ring and second confinement ring and is closer to the first confinement ring than to the second confinement ring and the second magnetic element is placed on a second side of the first confinement ring and second confinement ring and is closer to the second confinement ring than to the first confinement ring, and wherein magnetic field lines passing from the first magnetic element to the second magnetic element pass through the first confinement ring and the second confinement ring. This is shown in FIG. 1 and FIG. 3. These elements are not disclosed or made obvious by the cited references.

Claim 23 has been added to recite that the first magnetic element and the second magnetic element are within the chamber walls. This is shown in FIG. 1.

Applicants believe that all pending claims are allowable and respectfully request a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at telephone number (650) 961-8300.

Respectfully submitted,
BEYER WEAVER & THOMAS, LLP



Michael Lee
Registration No. 31,846

P.O. Box 70250
Oakland, CA 94612-0250
(650) 961-8300